

REMARKS

This communication is in response to the outstanding Office Action dated December 31, 2003. Claims 21-26 and 28-46 were rejected under 35 USC § 103 using McFarland in view of Rose. Claims 1-20 were canceled in an earlier response without prejudice or disclaimer. The Office Action indicates that claim 27 is objected to and would be allowable if written in independent form.

Request for Reconsideration

Applicant requests a reconsideration of the obviousness rejection of claims 21-26 and 28-46.

Amendments

Claims 21-28, 32-40 and 44-46 are amended to remedy formal errors in the claims, such as formatting and spacing. The only substantive change to the claims is broadening by replacing means-for-function language with apparatus language and other changes to clarify the claims. The amendments are not to be construed as an admission by Applicant of the correctness of the rejection.

Obviousness Rejection of Claims 21-46

The Patent Office has the burden under 35 U.S.C. § 103 to establish a *prima facie* case of obviousness. *In re Fine*, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). To establish a *prima facie* case of obviousness, the Patent Office must show that some objective teaching in the prior art or some knowledge generally available to one of ordinary skill in the art would lead an individual to combine the relevant teaching of the references. *Id.*

The *Fine* court stated that:

Obviousness is tested by "what the combined teaching of the references would have suggested to those of ordinary skill in the

Application: 09/760,908
Attorney Michael G. Smith

Examiner Lockett

art." *In re Keller*, 642 F.2d 413, 425, 208 USPQ 871, 878 (CCPA 1981)). But it "cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination." *ACS Hosp. Sys.*, 732 F.2d at 1577, 221 USPQ at 933. And "teachings of references can be combined *only* if there is some suggestion or incentive to do so." *Id.* (emphasis in original).

The M.P.E.P. adopts this line of reasoning, stating that

In order for the Patent Office to establish a *prima facie* case of obviousness, three base criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *M.P.E.P.* § 2142 (citing *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed.Cir. 1991)).

An invention can be obvious even though the suggestion to combine prior art teachings is not found in a specific reference. *In re Oetiker*, 24 USPQ2d 1443 (Fed. Cir. 1992). At the same time, however, although it is not necessary that the cited references or prior art specifically suggest making the combination, there must be some teaching somewhere which provides the suggestion or motivation to combine prior art teachings and applies that combination to solve the same or similar problem which the claimed invention addresses. One of ordinary skill in the art will be presumed to know of any such teaching. (See, e.g., *In re Nilssen*, 851 F.2d 1401, 1403, 7 USPQ2d 1500, 1502 (Fed. Cir. 1988) and *In re Wood*, 599 F.2d 1032, 1037, 202 USPQ 171, 174 (CCPA 1979)).

Applicant respectfully submits that the Office Action did not make out a *prima facie* case of obviousness for the following reasons:

- (1) even if combined, the cited references fail to teach or suggest all of the elements of Applicant's claimed invention;

Application: 09/760,908
Attorney Michael G. Smith

Examiner Lockett

- (2) The cited references teach away from Applicant's claimed invention;
- (3) There is no suggestion to combine the cited references because a suggestion to combine must come from the prior art and not from Applicant's specification or impermissible hindsight; and
- (4) The claimed invention has not been considered as a whole.

(1) cited references fail to teach or suggest all of the elements of Applicant's claimed invention

The Office Action states that "Rose discloses that the use of a tuning adjustment device comprising a means for bringing at least string proper playing pitch from an untensioned conditioned at least one pitch tuning quickly is well known in the art (column 6, lines 6-20)."

Rose discloses a tremolo that is brought to a normal position by tension created by tuning pegs (17) on strings attached to one side of the fulcrum tremolo and by tension of biasing springs (30) on another side of the fulcrum tremolo (col. 3 line 41-51). The fulcrum tremolo of Rose is not brought into normal position by a singular tuning adjustment device that is a part of the stringed musical instrument, but rather by outside forces created by two separate components, the pegs and the springs. Further, Rose discloses a fine tuner for a fulcrum tremolo where the strings have been first tuned by the tuning keys, and then clamped in a condition where the tuning keys no longer function (col. 1 lines 32-52).

Rose discloses making *subtle* changes in the tension of the strings created by the tuning pegs when the strings are clamped. As such, the tuning that Rose discloses is limited to fine tuning or a manner "as to change the tension of the string" (col. 2 line 17). Thus, fine tuners do not have ability to raise tension of strings from an untensioned condition to a pitched condition, especially so when the strings are clamped as disclosed.

Application: 09/760,908
Attorney Michael G. Smith

Examiner Lockett

Claims 21-44 require “an untensioned condition.” However, McFarland and in particular, Rose do not disclose “an untensioned condition” because each require a string to be tensioned at playing pitch by a separate device “tuning keys or the like” (col. 1 lines 20-23) such as tuning pegs in order to work at all before the clamped condition is achieved on the Rose tremolo. This is a serious and distinct deficiency in the disclosure of McFarland and Rose. The reference must teach or suggest all the claim elements. M.P.E.P. § 2142 (citing *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed.Cir. 1991)). Therefore, on this point alone claims 21-44 are allowable.

(2) The cited references teach away from Applicant’s claimed invention

Not only does McFarland fail to disclose all the elements of claims 21-44, but McFarland describes a “tool or device” that is temporarily attached to the Rose fulcrum tremolo for allowing the adjustment of the harmonic tuning of an individual string while clamped and under tension which would otherwise be impossible. See column 2, lines 20-44, of US Patent 4,611,523. The references do not teach or suggest a stringed musical instrument that comprises an adjustment device for bringing a string to playing pitch, as recited in claims 21-44 because the disclosed tool of McFarland cannot be modified to be integral to the string musical instrument.

A factor cutting against a finding of motivation to combine or modify the prior art is when the prior art teaches away from the claimed combination. A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path the Applicant took. *In re Gurley*, 27 F.3d 551, 31 USPQ 2d 1130, 1131 (Fed. Cir. 1994); *United*

Application: 09/760,908
Attorney Michael G. Smith

Examiner Lockett

States v. Adams, 383 U.S. 39, 52, 148 USPQ 479, 484 (1966); *In re Sponnoble*, 405 F.2d 578, 587, 160 USPQ 237, 244 (C.C.P.A. 1969); *In re Caldwell*, 319 F.2d 254, 256, 138 USPQ 243, 245 (C.C.P.A. 1963).

McFarland describes a device or tool that that is temporarily attached to the Rose fulcrum tremolo for allowing the adjustment of the harmonic tuning of an individual string while clamped and under tension which would otherwise be impossible. Rose describes a fine tuning apparatus that functions as a bridge. Where subtle changes to the tension of each individual string can be made while clamped in such a prerequisite condition there is no possibility of tensioning string from an untensioned condition. The references teach away from the claimed combination because the device or tool is not integral to the stringed musical instrument and performs no other function than for setting the intonation of the individual strings.

(3) There is no suggestion to combine the cited references

The Rose patent provides no suggestion or motivation for achieving pitch tuning a string from an untensioned condition from a mechanism that both supports and provides harmonic tuning at subtle pitch changes for the musical instrument when the string are clamped. The McFarland patent provides no suggestion or motivation and in point of fact teaches away from using a mechanism for providing pitch tuning a string from an untensioned condition of a musical instrument by only teaching a separate and distinct tool for harmonic tuning of the Rose fulcrum tremolo where the strings are clamped and thus preventing such a possibility.

(4) The claimed invention has not been considered as a whole

Application: 09/760,908
Attorney Michael G. Smith

Examiner Lockett

In determining the differences between the prior art and the claims, the question under 35 U.S.C. 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious. *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 218 USPQ 871 (Fed. Cir. 1983); *Schenck v. Nortron Corp.*, 713 F.2d 782, 218 USPQ 698 (Fed. Cir. 1983); *Interconnect Planning Corp. v. Feil*, 774 F.2d 1132, 1143, 227 USPQ 543, 551 (Fed. Cir. 1985); MPEP § 2141.02. The examiner has not provided a basis of how the disclosure of McFarland can be modified to teach tensioning the string to playing pitch from an untensioned condition. Applicant's claim recites a mechanism for tensioning a string to playing pitch from an untensioned condition for a stringed musical instrument so as to achieve a playing condition for the instrument. McFarland is not a permanent part of a musical instrument. Rose does not provide a mechanism for achieving playability by tensioning a string to playing pitch from an untensioned condition. Neither references provide a teaching for a combination that tensions a string to playing pitch from an untensioned condition for a stringed musical instrument.

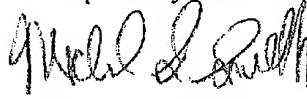
Therefore, Applicant submits that the rejection of McFarland in view of Rose is not supported by any teaching in the art of record. The examiner has failed to meet the prima facie burden of obviousness by failing to take the claims as a whole, considering the destruction of the references if combined, and failing to interpret the element of applicant's claim of tuning adjustment device comprising a first portion for bringing said at least one string to playing pitch.

Claims 21-46 are in a state of allowance. Applicant respectfully requests a Notice of Allowance for the application.

Application: 09/760,908
Attorney Michael G. Smith

Examiner Lockett

Respectfully Submitted,



Dated: May 5, 2004 By:

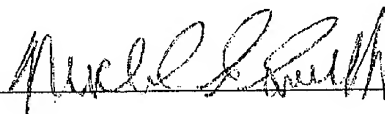
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Application: 09/760,908
Attorney Michael G. Smith

Examiner Lockett

CLEAN VERSION OF CLAIMS

Claim 21 A stringed musical instrument comprising:

- a body,
- a neck extending outwardly from said body,
- a head located opposite said body on said neck,
- at least one string extending from said body to said head, said at least one string having a first end and a second end,
- a first mechanism on said head for supporting and forming a first critical point for said at least one string,
- a second mechanism on said body for supporting and forming a second critical point for said at least one string,
- said first end secured to said head and said second end secured to said body, and
- a tuning adjustment device comprising:
 - a first portion to tension said at least one string to playing pitch from an untensioned condition to at least one pitch tuning quickly,
 - and
 - a second portion to further tension said at least one string at playing pitch,
- wherein said second portion is in close proximity to said first portion.

Application: 09/760,908
Attorney Michael G. Smith

Examiner Lockett

Claim 22 An apparatus of claim 21 wherein said tuning adjustment device is located on said body, and said tuning adjustment device further comprising: at least one anchor connected with said second end, and at least one third portion for pivoting said at least one anchor about an axis that is transverse to the axis of said at least one string in a first direction to tension said at least one string to said at least one pitch tuning.

Claim 23 An apparatus of claim 21 wherein said tuning adjustment device is located on said head, and said tuning adjustment device further comprises: at least one anchor connected with said first end, and at least one third portion for pivoting said at least one anchor about an axis that is transverse to the axis of said at least one string in a first direction to tension said at least one string to said at least one pitch tuning.

Claim 24 Apparatus of claim 23 wherein said tuning adjustment device further comprises at least one lock to impede pivoting said at least one third portion in a second direction.

Claim 25 Apparatus of claim 24 wherein said at least one lock allows pivoting of said at least one third portion in said first direction while impeding pivoting of said at least one third portion in said second direction.

Claim 26 Apparatus of claim 24 wherein said at least one lock further comprises a plurality of spaced-apart stops to impede pivoting said at least one third portion in said second direction.

Application: 09/760,908
Attorney Michael G. Smith

Examiner Lockett

Claim 27 Apparatus of claim 24 wherein said at least one lock further comprises at least one tooth formed on said at least one third portion that cooperates with at least one tooth to impede pivoting said at least one third portion in said second direction.

Claim 28 Apparatus of claim 23 wherein said second portion further comprises at least one tuner to vary the tension of said at least one string while said at least one third portion is in a locked position.

Claim 29 Apparatus of claim 28 wherein said at least one tuner further comprises a thumbscrew.

Claim 30 Apparatus of claim 28 wherein said at least one tuner further comprises a continuously variable element to continuously vary the tension in said at least one string.

Claim 31 Apparatus of claim 28 wherein said at least one tuner adjusts the position of said anchor.

Claim 32 Apparatus of claim 23 further comprising:
a nut, and
a bridge,
wherein said nut comprises said first critical point and said bridge
comprises said second critical point,
wherein said at least one anchor is adjacent said nut opposite said second
critical point.

Application: 09/760,908
Attorney Michael G. Smith

Examiner Lockett

Claim 33 Apparatus of claim 23 further comprising:

a nut, and

a bridge,

wherein said nut further comprises said first critical point and said bridge

further comprises said second critical point,

wherein said at least one anchor further comprises said nut opposite said

second critical point.

Claim 34 Apparatus of claim 23 wherein said at least one third portion further comprises an L-shaped elongated member.

Claim 35 Apparatus of claim 22 further comprising:

a nut, and

at least one bridge,

wherein said nut further comprises said first critical point and said at least

one bridge further comprises said second critical point for said at

least one string,

wherein said at least one anchor is adjacent said at least one bridge opposite

said first critical point and moveable therewith about said axis that is

transverse to said axis of said at least one string.

Claim 36 Apparatus of claim 22 further comprises:

a nut, and

at least one bridge,

said nut further comprises said first critical point and said at least one

bridge further comprises said second critical point for said at least

Application: 09/760,908
Attorney Michael G. Smith

Examiner Lockett

one string, said bridge having a surface extending generally in the direction of said axis of said at least one string, wherein said at least one anchor further comprises said at least one bridge opposite said first critical point.

Claim 37 Apparatus of claim 36 wherein said second critical point has at least one location on said at least one bridge, said at least one bridge having a curved surface, said at least one bridge being pivotably displaceable about said axis that is transverse to the axis of said at least one string, said second critical point travels a critical distance on said curved surface of said at least one bridge changing said at least one location of said second critical point establishing harmonic tuning at said playing pitch as said at least one bridge is pivoted by tensioning said at least one string to said at least one pitch tuning.

Claim 38 Apparatus of claim 37 wherein said tuning adjustment device further comprises at least one lock to impede pivoting said at least one third portion in a second direction.

Claim 39 Apparatus of claim 38 wherein said at least one lock allows pivoting of said at least one third portion in said first direction while impeding pivoting of said at least one third portion in said second direction.

Claim 40 Apparatus of claim 32 wherein said at least one third portion further comprises an elongated lever.

Application: 09/760,908
Attorney Michael G. Smith

Examiner Lockett

Claim 41 Apparatus of claim 39 wherein said tuning adjustment device further comprises a tremolo.

Claim 42 Apparatus of claim 37 wherein said tuning adjustment device further comprises a fulcrum tremolo.

Claim 43 Apparatus of claim 22 wherein said tuning adjustment device further comprises a macro-tuner.

Application: 09/760,908
Attorney Michael G. Smith

Examiner Lockett

Claim 44 A stringed musical instrument comprising:

- a body,
- a neck extending outwardly from said body,
- a head located opposite said body on said neck,
- at least one string extending from said body to said head,
- said at least one string having a first end and a second end,
- a first mechanism on said head to support and form a first critical point for said at least one string,
- a second mechanism on said body to support and form a second critical point for said at least one string,
- said first end secured to said head and said second end secured to said body,
- at least one string anchor located opposite said body on said head, and
- a tuning adjustment device combining
 - a first portion to quickly tension said at least one string to playing pitch from an untensioned condition at said at least one of several pitch tunings,
 - a second portion to fine tune said at least one string at said playing pitch, and
 - at least one gripping portion intermediate said nut and said at least one string anchor for gripping said at least one string,
- wherein said first portion, said second portion, and said at least one gripping portion and are in close proximity to each other.

Application: 09/760,908
Attorney Michael G. Smith

Examiner Lockett

Claim 45 A stringed musical instrument comprising:

- a body,
- a neck extending outwardly from said body,
- a fulcrum tremolo,
- a head located opposite said body on said neck,
- at least one string extending from said body to said head, said at least one string having a first end and a second end, a first mechanism on said head to support and form a first critical point for said at least one string,
- a second mechanism on said fulcrum tremolo to support and form a second critical point for said at least one string,
- said first end secured to said head and said second end secured to said fulcrum tremolo,
- said fulcrum tremolo further comprising:
 - a bearing portion to adjustably mount said fulcrum tremolo on said body for pivotal displacement, said bearing portion further comprising at least one bearing assembly, said bearing assembly further comprising at least a portion of a ball bearing surface.

Claim 46 Apparatus of claim 45 wherein said bearing assembly further comprises at least one shaft connected to said fulcrum tremolo.

Application: 09/760,908
Attorney Michael G. Smith

Examiner Lockett